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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,003	03/06/2002	Tsuyoshi Sano	U 013899-2	7577

7590

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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 01/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,003

Applicant(s)

SANO ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4/11/02 & 7/22/02
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 9 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9 and 17 each recite “acetylenic glycol type surfactant”. The scope of the claims is confusing because it is not clear what is meant by “type”. What kinds of surfactants are encompassed by this phrase? The addition of the word “type” extends the scope of the claims so as to render them indefinite since it is unclear what “type” is intended to convey. The addition of the word “type” to the otherwise definite expression renders the definite expression indefinite by extending its scope. *Ex parte Copenhaver*, 109 USPQ 118 (Bd. App. 1955).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 9, 13, and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubota et al. (U.S. 6,030,441).

Kubota et al. disclose ink set comprising cyan, yellow, and magenta inks wherein the cyan ink comprises Pigment Blue 15:3, the yellow ink comprises Pigment Yellow 110, and the magenta ink comprises Pigment Red 122. Each ink comprises water, acetylene glycol surfactant, and dispersant. The three inks are mixed to form black ink, i.e. composite black. It is further disclosed that the ink set also comprises black ink. There is also disclosed a recording method wherein an image is formed on a recording medium to form a recorded article (col.4, lines 40-41, col.4, line 66-col.5, line 4, col.5, lines 49-52, col.7, line 62, col.8, lines 34-38, col.9, lines 25-28, and col.13, lines 21-24).

Although there is no disclosure in Kubota et al. of the reflectance or difference in maximum and minimum values of the reflectance of the output color of the ink set under a D50 light source and spatial conditions as claimed, given that Kubota et al. disclose ink set comprising cyan, yellow, and magenta inks that comprise pigments identical to those presently claimed wherein the inks are mixed to produce output color as presently claimed, it is clear that such output color would also possess identical reflectance as presently claimed.

In light of the above, it is clear that Kubota et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (U.S. 6,030,441) in view of either Kurabayashi et al. (U.S. 5,618,338) or Donald et al. (U.S. 6,306,994).

The disclosure with respect to Kubota et al. in paragraph 4 above is incorporated here by reference.

The difference between Kubota et al. and the present claimed invention is the requirement in the claim of block copolymer dispersant.

Kubota et al. disclose the use of dispersant, however, there is no disclosure of block copolymer dispersant.

Kurabayashi et al., which is drawn to ink jet set, disclose the use of block copolymer dispersant obtained from monomer such as styrene in order to disperse the pigment (col.7, lines 43-67).

Alternatively, Donald et al., which is drawn to ink jet ink, disclose the use of block copolymer dispersant comprising hydrophilic block and hydrophobic block obtained from styrene in order to produce ink that has enhanced paper binding characteristics (col.2, lines 38-42 and 52-53, col.4, lines 18-20 and 50-51, col.5, lines 62-67).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use block copolymer dispersant in the ink of Kubota et al. in order to effectively disperse the pigment or, alternatively, to produce ink with enhanced binding to paper, and thereby arrive at the claimed invention.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (U.S. 6,030,441) in view of McCain et al. (U.S. 5,981,623).

The disclosure with respect to Kubota et al. in paragraph 4 above is incorporated here by reference.

The difference between Kubota et al. and the present claimed invention is the requirement in the claim of 1,2-alkanediol.

McCain et al., which is drawn to ink jet ink, disclose the use of 1,2-alkanediols in order to improve the penetration of the ink into the surface of the substrate (col.4, lines 56-65).

In light of the motivation for using 1,2-alkanediol disclosed by McCain et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use 1,2-alkanediol in the ink of Kubota et al. in order to improve penetration of the ink into substrate, and thereby arrive at the claimed invention.

9. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (U.S. 6,030,441) in view of Walker et al. (U.S. 6,530,986).

The disclosure with respect to Kubota et al. in paragraph 4 above is incorporated here by reference.

The difference between Kubota et al. and the present claimed invention is the requirement in the claims of ink set comprising green ink.

Walker et al., which is drawn to ink jet ink set, disclose the use of ink set comprising cyan, yellow, and magenta inks as well as green ink comprising pigment such as Pigment Green 7 in order to achieve excellent color reproduction and excellent color gamut (col. 2, lines 8-117 and 32-34).

In light of the motivation for using ink set comprising green ink disclosed by Walker et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use green ink in the ink set of Kubota et al. in order to produce images with excellent color reproduction and color gamut, and thereby arrive at the claimed invention.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (U.S. 6,030,441) in view of Danzuka et al. (U.S. 5,731,825).

The disclosure with respect to Kubota et al. in paragraph 4 above is incorporated here by reference.

The difference between Kubota et al. and the present claimed invention is the requirement in the claim of ink set further comprising light magenta ink and light cyan ink.

Danzuka et al. disclose using ink set comprising yellow, magenta, and cyan inks as well as light magenta and light cyan inks in order to improve the gradation of the printed image as well as to improve the graininess (col.2, line 58-col.3, line 1).

In light of the motivation for using light magenta ink and light cyan ink in ink set in addition to yellow, magenta, and cyan inks disclosed by Danzuka et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use light magenta ink and light cyan ink in the ink set of Kubota et al. in order to improve the gradation of the printed image as well as to improve the graininess, and thereby arrive at the claimed invention.

11. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (U.S. 6,030,441) in view of Danzuka et al. (U.S. 5,731,825), McCain et al. (U.S. 5,981,623) and either Kurabayashi et al. (U.S. 5,618,338) or Donald et al. (U.S. 6,306,994).

The disclosure with respect to Kubota et al. in paragraph 4 above is incorporated here by reference.

The difference between Kubota et al. and the present claimed invention is the requirement in the claims that the ink set further comprises light magenta ink and light cyan ink

and that the black ink, light magenta, and light cyan inks of the ink set each comprise block copolymer dispersant and 1,2-alkanediol.

It is noted that Kubota et al. disclose ink set comprising cyan, yellow, magenta, and black inks wherein each ink comprises water, acetylene glycol surfactant, and dispersant. However, there is no disclosure of light magenta ink or light cyan ink or that any of the inks comprise block copolymer dispersant or 1,2-alkanediol.

Danzuka et al. disclose using ink set comprising yellow, magenta, and cyan inks as well as light magenta and light cyan inks in order to improve the gradation of the printed image as well as to improve the graininess (col.2, line 58-col.3, line 1).

Kubota et al. disclose the use of dispersant, however, there is no disclosure of block copolymer dispersant. Kurabayashi et al., which is drawn to ink jet set, disclose the use of block copolymer dispersant obtained from monomer such as styrene in order to disperse the pigment (col.7, lines 43-67). Alternatively, Donald et al., which is drawn to ink jet ink, disclose the use of block copolymer dispersant comprising hydrophilic block and hydrophobic block obtained from styrene in order to produce ink that has enhanced paper binding characteristics (col.2, lines 38-42 and 52-53, col.4, lines 18-20 and 50-51, col.5, lines 62-67).

McCain et al., which is drawn to ink jet ink, disclose the use of 1,2-alkanediols in order to improve the penetration of the ink into the surface of the substrate (col.4, lines 56-65).

In light of the motivation for using light magenta ink and light cyan ink disclosed by Danzuka et al. as described above and for using block copolymer dispersant disclosed by either Kurabayashi et al. or Donald et al. as described above and for using 1,2-alkanediol disclosed by McCain et al. as described above, it therefore would have been obvious to one of ordinary skill

in the art to include light magenta ink and light cyan ink in the ink set of Kubota et al. in order to improve the gradation of the printed image as well as to improve the graininess and to use block copolymer dispersant and 1,2-alkanediol in each of the inks in the ink set in order to effectively disperse the pigment or, alternatively, to produce ink with enhanced binding to paper and to improve penetration of the ink into substrate, and thereby arrive at the claimed invention.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yatake (U.S. 2003/0078320) disclose ink set comprising black, cyan, magenta, yellow, and green inks that each comprise pigment identical to those presently claimed as well as acetylene glycol and 1,2-alkanediol. However, there is no disclosure of the reflectance of the output color. Further, given the effective filing date of the reference, the reference is not applicable against the present claims under any subsection of 35 USC 102.

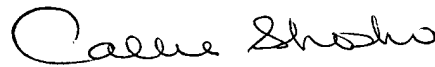
Yamamoto (U.S. 6,637,861) disclose ink set comprising cyan, magenta, and yellow pigments wherein the output color exhibits reduced dependence of color appearance on the light source, however, there is no disclosure or suggestion of the reflectance of the output color as required in all the present claims.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
1/2/03